**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

1. (Currently Amended): A method for detecting and quantifying telomerase activity in a biological sample, the method comprising the steps of:

adding the biological sample to a reaction tube comprising:

a first reaction mixture comprising a first primer, and nucleoside triphosphates;

a second reaction mixture comprising a second primer and a DNA polymerase; and

a wax layer separating the first reaction mixture from the second reaction mixture in the reaction tube;

incubating the biological sample with the first reaction mixture under conditions suitable for a telomerase to produce an extension product from the first primer, said extension product having a 3' end;

elongating the extended product at the 3' end by polyadenylation;

admixing the extension product with the second reaction mixture by melting the wax layer;

amplifying the extension product using a real-time polymerase chain reaction under conditions that allow the detection of telomerase activity from a single 293T cell; and

quantifying the amplified extension product using a control template.

2. (Original): The method of claim 1, wherein the biological sample is added in the form of a cell or tissue extract.

3. (Original): The method of claim 1, wherein the real-time polymerase chain reaction is quantified by using a fluorescently labeled probe oligonucleotide that binds to a sequence between the first and the second primers.

4. (Original): The method of claim 1, wherein the real-time polymerase chain reaction is performed in the presence of a fluorescent dye that binds preferentially to double-stranded DNA.

5. (Original): The method of claim 1, wherein the second primer is a single-labeled fluorogenic primer that produces an increased amount of fluorescence emission when the fluorogenic primer is incorporated into double-stranded polymerase chain reaction product.

6. (Canceled).

7. (Original):The method of claim 1, wherein the control template has a nucleotide sequence recited in SEQ ID NO:2.

8. (Currently Amended):A method for detecting and quantifying telomerase activity in a sample cell, the method comprising the steps of:

suspending the sample cell in a cell suspension;

passing the cell suspension through a needle ~~at least once~~ 2-5 times;

introducing into a sample cell a first primer and nucleoside triphosphates;

incubating the sample cell under conditions suitable for a telomerase to produce an extension product from the first primer;

elongating the extended product at the 3' end by polyadenylation;

amplifying the _extension productusing real-time polymerase chain reaction; and

quantifying the amplified extension product using a control template.

9. (Original): The method of claim 8, further comprising: lysing the sample cell with a lysis buffer.

10. (Original): The method of claim 8, wherein the first primer and nucleoside triphosphates are introduced into the sample cell by calcium phosphate precipitation.

11. (Canceled)

12. (Original): The method of claim 8, wherein the real-time polymerase chain reaction is performed in the presence of a fluorescent dye that binds preferentially to double-stranded DNA.

13. (Original): The method of claim 8, wherein the real-time polymerase chain reaction is performed in the presence of a second primer, and wherein the second primer is a fluorogenic primer that produces an increased amount of fluorescence emission when the fluorogenic primer is incorporated into double-stranded polymerase chain reaction product.

14. (Original): The method of claim 8, wherein the control template has a nucleotide sequence recited in SEQ ID NO:2.

15. (Currently Amended): A method for detecting and quantifying telomerase activity in a biological sample, the method comprising the steps of:

adding the biological sample to a reaction tube comprising:

a first reaction mixture comprising a first primer and nucleoside triphosphates;

a second reaction mixture comprising a second primer and a DNA polymerase; and

a wax layer separating the first reaction mixture from the second reaction mixture in the reaction tube;

incubating the biological sample with the first reaction mixture under conditions suitable for a telomerase to produce an extension product from the first primer, said extension product;

elongating the extended product at a 3' end by ~~one of~~ polyadenylation ~~and ligation~~;

admixing the extension product with the second reaction mixture by melting the wax layer;

amplifying the extension product using a real-time polymerase chain reaction under conditions that allow the detection of telomerase activity from a single 293T cell; and

quantifying the amplified extension product using a control template, wherein the second primer comprises a nucleotide sequence that is complementary to the nucleotide sequence at a 3' end of the elongated extension product.

16-19. (Canceled)

20. (Previously Presented): A method for monitoring the effectiveness of treatment of a subject with an agent that inhibits telomerase activity, said method comprising:

obtaining a pre-administration sample from the subject prior to administration of the agent;

detecting a level of telomerase activity in the pre-administration sample using the method of claim 1;

obtaining one or more post-administration samples from the subject;

detecting the level of telomerase activity in the post-administration samples using the method of claim 1; and

comparing the level of telomerase activity in the pre-administration sample with the level of telomerase activity in the post-administration sample or samples.